

Chapter I: Literature Survey

1. Exchange, value, money and price (ratios) have played an important role in the production of commodities and distribution of incomes across various societies and cultures. However, there does not exist a single theory unifying all of these under one doctrine. While exchange and value are regarded at the firm level, money and distribution are regarded at the national level; while price ratios are considered under “real” analysis; absolute prices are lumped under “monetary analysis”. To quote Grandmont (Grandmont, 1985) in this sense, *One of the major theoretical issues that underlies, implicitly or explicitly, quite a few recurrent controversies in macroeconomics is whether a competitive monetary economy has built in mechanisms that are strong enough to remove excess demands and supplies on all markets, through an automatic adjustment of the price system*¹. Moving into the strands of literature available before us, a clear delineation exists between classical, neoclassical and Keynesian schools of thought. In neoclassical economics, the value of an object or service is often seen as the price it would command in an open and competitive market. This is determined primarily by the demand for the object relative to its supply. Many neoclassical economic theories equate the value of a commodity with its price, whether the market is competitive or not. As such, everything is seen as a commodity and if there is no market to set a price then there is no economic value. In classical economics, the value of an object or condition is the amount of discomfort/labor saved through the consumption or use of an object or condition (Labor Theory of Value). Though exchange value is recognized, economic value is not dependent on the existence of a market and price and value are not seen as equal. In this tradition, to Steve Keen (Keen, 2001) "value" refers to *the innate worth of a commodity, which determines the normal ('equilibrium') ratio at which two commodities exchange*². To Keen and the tradition of David Ricardo, this corresponds to the classical

¹ Grandmont, J M (1985): *Money and Value: A Reconsideration of Classical and Neoclassical Monetary Economics* (Econometric Society Monographs)

² Steve, Keen (2001): *Debunking Economics : The Naked Emperor of the Social Sciences* (Palgrave Macmillan)

concept of long-run cost-determined prices, what has been referred to in the Wealth of Nations (Smith, 1776) called "natural prices" and Das Kapital (Marx, 1872) referred to as the "prices of production." It is part of a cost-of-production theory of value and price. Ricardo, but not Keen, used a "labor theory of price" in which a commodity's "innate worth" was the amount of labor needed to produce it. In another classical tradition, Marx distinguished between the "value in use" (use-value, what a commodity provides to its buyer), "value" (the socially-necessary labour time it embodies), and "exchange value" (how much labor-time the sale of the commodity can claim, Smith's "labor commanded" value). By most interpretations of his labor theory of value, Marx, like Ricardo, developed a "labor theory of price" where the point of analyzing value was to allow the calculation of relative prices. Others see values as part of his sociopolitical interpretation and critique of capitalism and other societies, and deny that it was intended to serve as a category of economics. According to a third interpretation, Marx aimed for a theory of the dynamics of price formation, but did not complete it³. Roy Harrod (Harrod, 1937),⁴ James Meade (Meade, 1937)⁵ and Oskar Lange (Lange, 1938)⁶ had attempted to express the main relationships of Keynes's (Keynes, 1936) theory as equations in order to elucidate the interrelationships between the theory of effective demand and the theory of liquidity preference. The 1937 (Hicks, 1937)⁷ *Econometrica* article, "Mr Keynes and the Classics: A suggested interpretation", suggested two curves, "SI-LL" to illustrate these relationships. These curves have since become famously known as the IS-LM model and were popularized by a now-converted Alvin Hansen⁸ (Hansen: 1949, 1953). The IS-LM model has remained one of the most formidable pieces of pedagogic machinery and, as far as back-of-the-envelope diagrammatic reasoning is concerned, one of

³ Refer Annexure for a detailed discussion of Classical, Keynesian & Neoclassical Monetary theories. This chapter would focus primarily on the works of Hicks, Patinkin, Clower & Hahn

⁴ Harrod, R, "Mr. Keynes and the traditional theory", *Econometrica*, Vol 5, 1937

⁵ Meade, J, "A simplified model of Mr Keynes' System", *Review of Economic Studies*, 1937

⁶ Lange, O, "The rate of interest and the optimum propensity to consume", *Economica*, Vol 5, 1938, pp 12-32

⁷ Hicks, J, "Mr Keynes and the classics; A suggested reinterpretation", *Econometrica*, Vol 5 No 2, 1937, pp 147

⁸ Hansen, A H (1949): *Monetary Theory and Fiscal Policy* (New York: McGraw-Hill)

the most efficient ever devised in economics. It is not, however, without substantial problems, both as an internally consistent model or as a representation of Keynes's theory. The crucial feature of the Keynesian system Hicks and Hansen concentrated on when formulating the simple IS-LM is the interaction between the real and monetary markets. From the real market, one extracts the level of income (Y) and from the money market, one obtains the interest rate (r). These variables, in turn, affect elements in the other market - in the simplest version, income affects money demand and interest affects investment. This interaction clearly violates the "classical dichotomy" and, as we shall see, it also does not support the neutrality of money. Financial-real interaction is the core of the IS-LM version of Keynes's theory - therefore, Hicks (Hicks, 1937)⁹ concluded with perfect Walrasian instincts, it is necessary to solve for the money and real markets simultaneously. However, many Keynesians, such as Pasinetti (Pasinetti, 1974)¹⁰, have argued that Keynes's system should be thought of "block recursively" or "sequentially" and thus should not be solved simultaneously. Specifically, it can be argued that the Keynesian system ought to be seen as a sequence of alternating "asset market" and "goods market" decisions - the interest rate being first determined by a portfolio decision in the financial markets and only thereafter determining investment, output and employment in the real market which then feeds back into another portfolio decision, etc. This criticism is noteworthy because the portfolio (LM) decision is made in the context of a stock constraint whereas the real market decisions (IS) are made in a flow constraint. Furthermore, as Richard Kahn (Kahn, 1984)¹¹ and Joan Robinson (Robinson: 1973, 1978, 1979) emphasized later, the simultaneous equation method of the IS-LM, by eliminating sequential time, also eliminates the time-dependent concepts which they saw as fundamental to Keynes's theory - such as uncertainty, expectations, speculation and animal spirits. As John Hicks (Hicks: 1980, 1988) himself notes in his recantation, these different time references for IS and LM

⁹ Hicks, J, (1937), "Mr Keynes and the classics; A suggested reinterpretation", *Econometrica*, Vol 5 No 2, pp 147.

¹⁰ Pasinetti, L., *Growth & income distribution: essays in economic theory*, 1974

¹¹ Kahn, R., *The making of Keynes' General Theory*, Cambridge University Press, 1984

makes the simultaneous IS-LM model incongruous (see also Leijonhufvud¹², 1968, 1983; Davidson, 1992). Keynesian General Theory is a glorified version of the solution to the age old problem: determining the value of money, achieving a truly integrated theory unifying exchange and money. After General Theory, Hicks, Allen and Hansen attempted a version of the Keynesian model and titled it the IS-LM model. It must be understood that Keynes was able to demonstrate with significant levels of acceptability that a system that involves money in any of its forms, consoles or bonds, credit or paper is never able to achieve its fullest potential. As a result, any model involving money should not attempt to explain equilibrium but should aim at attempting explanations towards the frictions that a monetary model presents. In terms of the General Theory, wage rigidity, liquidity trap, principle of effective demand and involuntary employment, all tying back to only one thing, frictions in the monetary system are offered as explanations to the theory of money and production economy. However, the unification of monetary and value theory is attained ingeniously through the multiplier-accelerator principle and hence, through a series of business cycles. Interest rates adjustment is a pivotal element in Keynesian analysis while wages *have to* remain rigid. The equilibrating factor in Keynesian synthesis was output through the saving-multiplier-accelerator principle. However, the General theory spurred an all important economic phenomena- the Hicksian IS-LM framework. Hicks constructed his suggested interpretation of the Keynes' General Theory in 1937, a year after the publication of the theory. Hicks immediately recognized some similarities between his model and the General Theory. The theory of effective demand forms an essential part of the IS-LM model. Effective demand manifests itself in the spending of income, and for income to increase, employment should increase, and thus consumption increases at a rate lesser than income. Despite similarities, there are two fundamental differences between the General Theory and the IS-LM model. The IS-LM model is a perfect competition model in which the all the prices is flexible (flexprice model). Keynes however made use of price

¹² Leijonhufvud, A (1968): *On Keynesian economics and the economics of Keynes*, (Oxford University Press) pp. 27.

rigidity in his model. Keynes assumptions of money wage and price rigidity led to the Neo-classical Synthesis. Another feature of the General Theory concerns the length of the period. Keynes used a short-term period, assumed to be a year, whilst Hicks used an ultra short period called a week. Victoria Chick¹³ (Chick, 1982) used a quarter as a suitable period in her analysis of the IS-LM model. She pointed out that investment component is fixed at the beginning of the quarter through interest rate as determined by the liquidity preference and long-term expectations. The IS-LM model is constructed from an Investment Savings schedule and the demand for money (L) and supply of money (M) schedules. Hicks made use of two parameters to derive his schedule called the IS schedule. He determined the price of the one parameter in terms of another. For instance the price of A in terms of C and B in terms of C. If A and B are equilibrates, the third (A and B) equilibrates. Keynes also used two parameters. He used income (Y) in terms of wage units and the rate of interest (r). He made investment to be dependent on the interest rate and savings to be dependent on income. For each rate of interest there is a corresponding level of income at which savings equals investment. Therefore there is no excess demand in the goods market. Hicks expressed this relation between income and interest rates as the IS curve. Unlike the Classical model, Keynes viewed a positive relationship between savings and income. According to the General Theory, the level of income also depends on the desire to consume. If consumption rises with income, but the marginal propensity to consume is less than unity, the savings must rise with income. Another feature of Keynes' theory is that of savings being equal to investment. An increase in income results in increased savings, which results in a decrease in the interest rate. Savings and investment are equal and the locus of these equilibrium points represents the downward sloping IS curve. Another characteristic of the General Theory is the liquidity preference theory or demand for money. The money market equilibrium requires the demand for money and the supply of money to be equal. It therefore also depends on the relationship

¹³ Chick, Victoria, "A comment on 'IS-LM: An Explanation'", *Journal of Post Keynesian Economics*, 1982, Vol IV, No 3, pp 439

between interest rates and the level of income. The demand for money can be analysed on the motives for people to hold money. Keynes identified three motives namely the transaction, precautionary and speculative motive. The transaction motive depends positively on the level of income. An increase in the level of income thus will increase the demand for active balances (transaction and precautionary motive). The demand for idle balances (speculative motive) is based on the function of interest rates based on expectations of future interest rate. The Neo-classical Synthesis differ from the IS-LM model in the sense that consumption is not determined by income alone, but also through wealth effects as introduced by Pigou¹⁴ (Pigou, 1943). Like the IS-LM curve, a fall in price will shift both the LM and IS curve rightwards as it is presented in the wealth effects of Pigou. The increase in the real value of money leads to an increase in wealth, thus increasing consumption that is equal to investment. Monetary policy, together with price and wage flexibility can restore the economy to full employment, but the adjustment process might be too slow, and can only be speeded through fiscal policy. The acceptance of this view forms the basis of the Neo-classical Synthesis. An essential part of the General Theory is the effective demand theory, in terms of which aggregate supply is equal to aggregate demand. Say's Law also postulates that "supply creates its own demand." In terms of a monetary economy it will mean that the value of things sold is equal to the value of things bought. The introduction of money as a medium of exchange however does not necessarily agree with this notion, because income won't be necessarily entirely been spent on purchases, and even if so, it will only cover recovery costs and not large profits. This notion strengthens the IS-LM model in the sense that the part of the money not been spent will either be invested or saved. More so, what Hicks did to Keynes, Patinkin did to Hicks. Hicksian analysis stated that the General Theory was a special theory and not General at all. This, he stated because he was able to demonstrate that the rigidities that the Keynesian synthesis talked about with respect to the wage-price rigidity or the liquidity trap added

¹⁴ Pigou, A.C., "The classical stationary state", *Economic Journal*, 1943

nothing new, but only made (Hicks') LM curve flatter, a special case of the classic money supply curve

2. Techniques of varying nature had been proposed even since Keynes announced the concepts from General theory. Samuelson¹⁵ (Samuelson, 1939) came with his accelerators, Hicks with the full blooded mathematical version of the Keynesian model whilst Robinson and company still debating over problems of aggregation in the Hicksian or the Keynesian cases. In two articles which appeared in *Econometrica*, Patinkin examined classical monetary theory. The main conclusion of this was that the classical attempt to dichotomize the economic processes of a monetary economy into a real sector, dependent upon and determining relative prices, and a money sector, dependent upon and determining absolute prices, cannot possibly succeed. These propositions were attacked by W. B. Hickman (Hickman, 1950)¹⁶, W. Leontief (Leontief, 1950)¹⁷, C. G. Phipps (Phipps, 1950)¹⁸ in criticisms. These criticisms led to developing what later became the most important classic in economic literature, second only to General Theory¹⁹. Patinkin's decision to resume his book project was made while working in 1952-1953 on a paper on "Keynesian Economics and the Quantity Theory", following an invitation (in October 1951) by Kenneth Kurihara to contribute to a book (Kurihara, 1954)²⁰ on Keynesian economics after Keynes. However, instead of his original plan for a text on employment theory, Patinkin decided to write a book on monetary theory, moving the discussion of the integration between monetary and value theory through the real balance effect to the first part ("microeconomics") of the book and the chapters on the theory of employment to the second part ("macroeconomics"), which is close to the organization of his 1947 dissertation. Chapters 13 and 14 on unemployment - partly based, respectively, on Patinkin - were preceded by a full employment aggregative model (chapters 9 to 12), first advanced in his 1954 contribution to the Kurihara volume. As recalled by

¹⁵ Samuelson, Paul, "Dynamics, Statics & the stationary state", *The Review of Economics & Statistics*, 1943

¹⁶ Hickman, W.B., "*The determinacy of absolute prices in classical economic theory*", *Econometrica*, 1950

¹⁷ Leontief, W., "*The consistency of the classical theory of money & prices*", *Econometrica*, 1950

¹⁸ Phipps, C.G., "*A note on Patinkin's 'Relative Prices'*", *Econometrica*, 1950

¹⁹ Patinkin, Don (1954): *Money, Interest & Prices: An integration of Monetary & Value theory* (MIT Press)

²⁰ Kurihara, K. ed. *Post-Keynesian Economics*, 1954

Patinkin, “it was in the process of writing this article that I decided to write my 1956 book”. Patinkin argued that the propositions of the quantity theory of money - such as the long-run neutrality of money - are based only on the assumption of an absence of money illusion, and hold under any form of the aggregate demand function, a claim that he carried to MIP as the general theoretical conclusion of the book. An important point to note is Patinkin aimed the formal synthesis of monetary and value theories through two approaches: in part one of his book through the microanalysis and in part two through the macroanalysis. These two analyses have their formal basis in what Patinkin developed as the real balance effect. Patinkin picked up this trend from his predecessors in Scitovszky, Haberler and Pigou. Nonetheless, all was not well for long. Specifically, Haberler (Haberler, 1937)²¹, Scitovsky (Scitovsky, 1941)²² and Pigou (Pigou, 1943)²³ postulated that the consumption decision is based not only on current income but on "real net wealth". Initially, "real net wealth" referred to the real supply of money (M/p) and the real supply of bonds (B/p). The conventional Keynesian consumption function makes consumption, at best, a function of real disposable income and interest rates, but Haberler-Pigou proposed the inclusion of real net wealth as well, thus $C = C(Y, r, V)$ where $V = M/p + B/p$. The implication of this new consumption function should be clear. In situations of unemployment, as money wages and price levels decline, then the real money supply rises (the Keynes effect) which, as we saw, shifts the LM curve to the right. However, the "Pigou Effect" (or "Real Balance" effect) implies that as M/p rises, so does V and consequently consumption rises as well - shifting the IS curve to the right. Thus, Pigou proposed, even the "special cases" of a liquidity trap or interest-insensitive investment are not sufficient to maintain unemployment equilibrium as the rightward shifts of the IS curve via the "Pigou Effect" will ensure we are taken to full employment equilibrium. Thus, the only possible way to have unemployment equilibrium in a Keynesian model is if there are sticky wages and prices, period. While many neoclassicals cheered this development, there was a sense of unease

²¹ Haberler, G., *Prosperity & Depression*, League of Nations, 1937

²² Scitovsky, T., “*A note of welfare propositions in economics*”, *Review of Economic Studies*, 1941, pp. 69

²³ Pigou, *ibid*

about these wealth effects for the implications they had for their own macroeconomic theory. Specifically, as Metzler (Metzler, 1951)²⁴ noted *In salvaging one feature of classical economics - the automatic tendency of the system to approach a state of full employment - Pigou and Haberler have destroyed another feature, namely, the real theory of the interest rate*. In other words, the "dichotomy" between real and monetary sectors, so popularized by neoclassical economists, was broken by the Pigou Effect; as increases in the money supply could now affect real items like consumption, interest and output. In a careful and elaborate disquisition and elucidation, Don Patinkin arrayed various arguments in defense of this "wealth effect". Specifically, he noted, the neoclassical theory was contradictory anyway - it is impossible to reconcile the Quantity Theory of Money with the assumption of dichotomy. In fact, as he went on to argue, the "neutrality hypothesis" and the Quantity Theory itself requires a real balance effect that violates dichotomy. Furthermore, it helps solve the old problem of negative interest rates that the neoclassical loanable funds theory could not really rule out.

3. Patinkin's real balance effect for the micro economics and Chapters 13 and 14 for the macro economy gave a distinctive character to Money, Interest and Prices. Whilst the former was incorporated into many analyses of deflation and price theory, the later was used and made one of the foundations of disequilibrium macroeconomics. To quote an unpublished chapter from Patinkin, *when I wrote chapter 13 of my book in 1956... I felt at the time, and still feel, that that was the most novel and important contribution of the book*²⁵. Although Patinkin did not organize his discussion of the concept of involuntary unemployment around Keynes's definition, he mentioned on several occasions that (contrary to Lange's interpretation) Keynes's notion of "unemployment equilibrium" did not mean that the labor market is in equilibrium without any tendency for money-wages to change. An important point worthy of noting is the fact that through his book and

²⁴ Metzler, L, "*Wealth, saving & the rate of interest*", Review of Political Economy, vol59, 1951, pp. 93

²⁵Unpublished verbatim records of the 1987 Perugia conference on "the notion of equilibrium in Keynesian theory", organized by M. Sebastiani

his econometrica articles, Patinkin aimed at proving, amongst other things, that the neoclassical dichotomy between real and monetary sectors cannot be maintained. Patinkin aimed at removing this dichotomy out of the monetary and value analyses. To this end, in his micro analysis, he had used the standard utility analysis with a modification for real money balances as an argument in the utility functions. With these, he used the Walras' law and tried to identify an equilibrium in the system. In the macro analysis, he aggregated all of these individual demand curves, of course assuming all individuals to be homogenous, and in effect therefore assuming all Engel curves to be parallel to one another. In so doing, Patinkin had also introduced a fresh market, the market for bonds following Keynes and thus his variables were price, interest and the level of real balances, operating at conditions of full employment where money balances were assumed to be a given. Thus, his analysis is more concentrated towards explaining disequilibrium economics rather than identifying an economic equilibrium. As we shall see, Patinkin failed on two counts: one in terms of the analytical framework he had suggested and second in terms of the mathematical stability and existence of the solutions of his system. In effect, due to the fact that in Patinkin's model, money appears from nowhere and the model does not maintain the link between real and monetary analysis, the model appears to be a glorified version of barter. The main reason for this being the element of time in his system. Trading is synchronized amongst weeks and every week individuals receive their endowments and they trade starting Monday thorough Saturday when the system attains equilibrium. There is no explanation as to how the system moves to a new level or an explanation to provide for the additions to existing stocks is missing. In this model, in which time is divided into discrete contracting periods called weeks, it is important to distinguish between equilibrium at a point of time and equilibrium over time. As Hicks has put it, a stationary economy " . . . is in full equilibrium, not merely when demands equal supplies at the currently established prices, but also when the same prices continue to rule at all dates. The level of dynamics in the system is crude and rudimentary. With all these, however, the whole point of Patinkin's book was to attack the neoclassical dichotomy. In so

doing, Patinkin employed certain concepts and analytical devices of his own. Patinkin has in his system, what he calls, a demand curve of individuals for money and what he defines as corresponding “market equilibrium curve”. The point remains and the question still remains open: can all this not be done without:

- a. Maintaining false separations between real and nominal balances in Patinkin's world?
- b. Do we need to adhere to the Walras' law in this system because sticking to Walras' law, we are getting into the same debate that with the excess demand in commodity markets will be cleared by excess supply in money markets, bond markets held constant or some similar feature
- c. Labour market in Patinkin operates at full employment and still Patinkin manages to demonstrate disequilibrium.

All said, this question of whether a monetary theory can co-exist with a value theory, or to be more on the bulls-eye, are these two doctrines: real and monetary in reality separable? *In order to understand how Patinkin's model works, it is necessary to analyze: (1) the individual's weekly equilibrium; (2) how he reaches full equilibrium; (3) how this full equilibrium is altered by a changed desire for balances; (4) how it is altered by a change in the price level (5) how the market reaches full equilibrium; (6) how full equilibrium in the market is altered by a change in the money stock; (7) how weekly market equilibrium is altered by a change in the money stock which takes place when full equilibrium does not obtain; (8) the effects on the market of a non-proportional change in individuals' stocks of money; (9) the bearing of the above on the demand for money; and (10) the part played in the above by the real-balance effect. Since Patinkin neglects the conditions for full equilibrium, his analysis is devoted mainly to (1), (7), (8) and (9)*²⁶. Patinkin's contribution to the field of monetary theory is important primarily due to two reasons- one that Patinkin intended to provide the micro-foundations of monetary theory. Choice theoretic frameworks to explain the monetary theory were not available in the Patinkin era. Patinkin began his quest

²⁶ G.C. Archibald and R.G. Lipsey (1958): “Monetary and Value Theory: A Critique of Lange and Patinkin”, *Review of Economic Studies*, Vol. XXVI

for these. Along with such a process, Patinkin also aimed at developing a theory that would retain the assumptions of the theory and as well find a place for money! In so doing, Patinkin discovered two results- one that in the short-run, money is neutral; however, in the long run the effects like the real balance effect begin to operate and money loses its neutrality- money in the long run is non-neutral

4. Clower (Clower, 1965)²⁷ had discovered that there was a flaw with the analytical construct Patinkin had devised to employ. This had to do with the Patinkinian budget constraint, which Clower suggested to dichotomize. If the real-balance was so critical to Patinkin in establishing a link between real and monetary forces, Clower found that the right place to attack was where the real balances resided. Also, with respect to Patinkin's real balance, Archibald and Lipsey (Archibald & Lipsey, 1958) quote *this is necessary because Patinkin's analysis is incomplete and leaves many important points obscure. We find that, while the price level is of course determined by the desire to hold balances together with the stock of money, the role of the real-balance effect is only to provide an explanation of how the system behaves in disequilibrium. Thus the real-balance effect is irrelevant to those famous propositions of the quantity theory which are the result of comparative static analysis*²⁸. Clower (Clower, 1967) pointed out that in the Patinkinian world, the budget constraints need not always constitute an appropriate definition of choice alternatives in a monetary economy. *It can be shown, indeed, that an increase in unsold stocks of any commodity the price of which is fixed, in a Patinkinian world, generate an increase in the general price level and so, indirectly rise in the sales of the goods whose price is fixed. Again, therefore, we arrive at a conclusion that is offensive to our intuitive conception of the working of a money economy, a conclusion that indicates that money plays no distinctive role in economic activity*²⁹. What Clower therefore attacked in Patinkin was the model itself, and with comfortable ease was able to demonstrate that

²⁷Clower, R W (1965): "The Keynesian Counterrevolution: A theoretical appraisal" in F. H. Hahn and F. Brechling (eds.), *The Theory of Interest Rates*

²⁸ *Ibid*

²⁹ R.W. Clower (1967), "A Reconsideration of the micro foundations of monetary theory", *Western Economic Journal*, December

Patinkin's monetary economy was no better than a perfect barter. For Clower, the peculiar feature of a money economy is that some commodities are denied the role as potential or as actual means of payment. To use his terms, *Money buys goods, good buy money but goods do not buy goods*. Clower suggested that one could get over this issue through dichotomization of the budget constraint; one as a constraint on expenditure and another as a constraint on income. Clower himself does not suggest that this method is fool-proof but according to him, it at least guarantees the existence of the required solutions.

5. An important problem was highlighted by Grandmont and Younes (Grandmont & Younes, 1972). *Monetary theorists have been criticized for having neglected the "existence problem" that is the problem of the existence of an equilibrium where money has positive value in exchange. On the other hand, we are reminded by R. W. Clower that one of the weaknesses of contemporary monetary theory is that it primarily considers money as a store of value but does not pay enough attention to its function as an exchange intermediary. One can reasonably expect that the two problems are closely related*³⁰. People of this school predict that the monetary economy has an economic equilibrium and when it comes to existence of the economy, the problem has to be dealt more mathematically and rigorously rather than philosophically. First, the evolution of the economy is presented by the authors as a succession of temporary or short run equilibria. The model is augmented to provide for an exchange economy where only spot transactions are allowed and where (fiat) money is the only store of value, which is similar to the economy studied by Friedman (Friedman, 1969)³¹ or Patinkin (Patinkin, 1965)³². What is proved that a short run monetary equilibrium always exists in that type of model when, among other conditions, the elasticity of the traders' price expectations with respect to current prices is "small". The theorem is valid even when money has no role to perform as a medium of exchange. We now examine the validity of the classical dichotomy. *Indeed, if we look back to we see that*

³⁰ Jean-Michel Grandmont and Yves Younes (1972), "On the Role of Money and the Existence of a Monetary Equilibrium", *Review of Economic Studies*

³¹ Friedman, M (1969): *The Optimum Quantity of Money* (New Brunswick, New Jersey)

³² *Ibid*

there exists some kind of dichotomy between "real " and " monetary " quantities. For, if we "solve" equations with the additional requirement $\|p\| = 1$, it is possible to compute (stationary) relative equilibrium prices, equilibrium consumption and " real " equilibrium money holdings. Then, using the Quantity Theory, we can determine the monetary equilibrium price level and nominal money holdings from equation. This is what P. A. Samuelson (Samuelson, 1968)³³ claimed to be the classical dichotomy. It must be however emphasized that it is conceptually equivalent to the Quantity Theory. This dichotomy does not permit the separate determination of stationary relative prices and equilibrium consumption ignoring monetary phenomena. However, those who have managed to grab a copy of Arrow's³⁴ article, conclusions and quotes presented above seem confusing, misleading or wrong. Arrow has found that in the premises of the standard monetary theory, mathematical solutions do not exist in the Patinkin's world. *Recent work on the existence of an equilibrium has been concerned with a world without money while all work in monetary theory has ignored the 'existence' question*³⁵. In the context of monetary theory, the role of money has either been undermined by theorists or proved futile by mathematical analysts. The point however remains where it was as faced by Marx or Keynes or a Patinkin or a Friedman of late: *How to make money appear without making the standard theory disappear?* This remains the motivation for the rest of this work where we would aim to deviate from the *standard theory*. It may be the case that in the ambit of the proposed standard theories, the role of money had been forced from the outside and hence the conclusions had to be the way they are today. It is in here that we would like to stress that a standard theory would be abandoned in the light of the problems and issues highlighted above. We would aim to develop an economic model so as to capture and explaining the workings of the monetary economy. In Patinkin, microanalysis through real balance and macroanalysis

³³ Samuelson, P. A. (1968), "What Classical and Neo-Classical Monetary Theory Really Was ", *Canadian Journal of Economics*, (1), pp. 1-15.

³⁴ Hahn, F.H, 1971: *Trading out of Equilibrium, a Pure Exchange Economy*, Chapter 13

³⁵ Hahn, F.H (1965): "On some problems of proving the existence of an equilibrium in a monetary economy" in F. H. Hahn and F. Brechling (eds.), *The Theory of Interest Rates*

through the theory of unemployment fail to produce a unique role for money, the crux of Patinkin's work. Keynesian analysis came close to this, but Keynes failed to provide a modeling framework and argued philosophically that money is a friction to economic activity. Arrow, Hahn and the other took immense trouble of crafting mathematical edifices to these theories only to find some problems on proving the existence of solutions of such models. After all the discussions, it appears that the standard theory has been incapable of finding a place for money. In the current work, we therefore aim to change this course of thought. We aim to propose an alternative theory and discover whether such a theory would be capable of finding a place for money while keeping the standard assumptions relatively constant. Ultimately, the results of all these debates can be summed up simply as follows

- a. Money cannot appear in a model of economic theory where standard assumptions and frameworks are followed
- b. Where such a force-fitting is done, as seen in Patinkin or Clower, equilibrium and the existence of solutions becomes impossible as demonstrated by Arrow, Hahn, Debreu
- c. Hahn went to the extent of concluding that even if money is made to appear in the choice theoretic frameworks, the solution would only be trivial where the price of money would be zero. With zero exchange prices, what would be the role of money in such an economy? Therefore, one need to leave the ambit of standard theory if one needs to construct the synthesis of monetary and value theory.
- d. Do wages have to remain rigid and should the interest rate be caught in a trap, is money a *veil* to economic activity
- e. Does a quantity theory equation to explicitly provide for a relationship between money and prices have reasonable requirement?
- f. And finally, can there be an underemployment equilibrium in case where a different view on approaching the problem is proposed?

Therefore so, if it is not possible to *make money appear without making standard theory disappear*, the ideal way out would be to ***make money appear by making standard***

theory disappear. In what shall follow, we would aim to do exactly the same. We begin with exploring an alternative theory of value and then only when the footings are firmly established, we would set out to develop the integration of money and prices.